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(54) Swimming goggles

(57) A swimming goggle model, comprising: two lens frames, each lens frame accommodating a lens, and a first joining unit and a second joining unit on two opposite ends. At least one round string, pulled in sequence through the first and the second joining units of the two lens frames, maintains an appropriate span between the two lens frames. A headband device is joined in series to the two joining units on the outside edge of the two lens frames. Using this structural characteristic, the user can adjust the span of the round string between two lens frames, to adjust the span of the nose bridge.

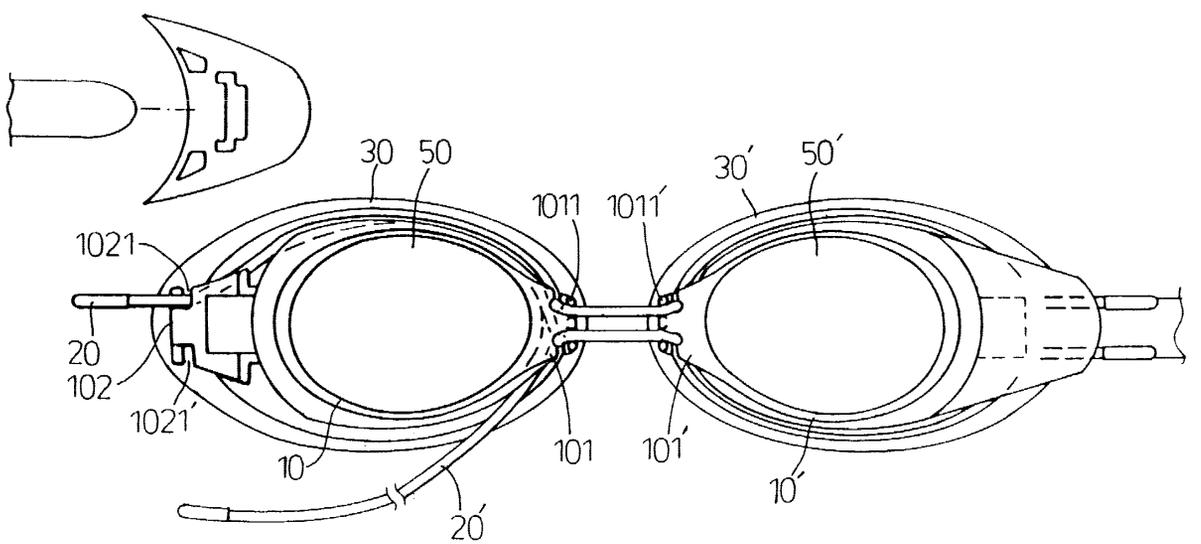


FIG. 4A

EP 1 106 214 A1

Description

Field of the Invention

[0001] This invention is a model of swimming goggles for swimming pool purposes with a step-less nose bridge adjustment .

Background of the Invention

[0002] Conventionally, a pair of swimming goggles has a span between two lens frames adjusted to suit the user's nose shape. There are only three steps in the nose bridge adjustment (as shown in Fig. 1). A conventional nose bridge has a structural checking mechanism design for adjustment. Adjustment in the natural direction will be much easier than in the reverse direction. Referring to Fig. 1, which illustrates conventional swimming goggles 5, wherein the nose bridge is a plate body 51 with several ribs 510 resting on a seat 520 of the lens frame 52. Two opposite sides of said ribs 510 are designed on a guided surface. For the checking effect, the angle of the guided surface on one side is larger. The larger angle requires much effort in adjusting the span. It would even become impossible to make the adjustment if it is operated improperly. One point that deserves attention is that, when the ribs 510 on the plate body 51 are pulled for adjustment, the ribs become compressed and deformed by the seat 520. After extended use, the ribs 510 are flattened and no longer engage the seat 520, resulting in loosening of the swimming goggles, or even the risk of water seepage. In other cases, the user may not know how to make the 3-step adjustment, so they will not feel comfortable. In view of this, it has become important for designers to present a type of swimming goggles to suit various nose ridge configurations .

Brief Description of the Invention

[0003] The primary objective of this invention is to provide a type of swimming goggles with a step-less nose bridge adjustment . Using an innovative design, the nose bridge span of the swimming goggles can be freely adjusted by the user to suit the user's nose ridge and to ensure wearing comfort.

[0004] Another objective of this invention is to provide a type of nose bridge span adjustment that uses a twitching and snapping positioning td provide operational convenience.

[0005] This swimming goggle invention is characterized by : the two ends of the longer axis of the lens frames of the swimming goggles respectively have a first joining unit and a second joining unit. The formation of the nose bridge of the swimming goggles has a round string, that is positioned along the rims of the lens frames onto the first and second joining units of the two lens frames, which maintains an appropriate span between the two lens frames. In other words, the nose bridge is formed by the round string, which is connected in a series connection to the two lens frames and producing an appropriate span. Through this structural characteristic, the user may adjust the span on the round string ofthe two lens frames, to achieve nose bridge adjustment of the swimming goggles.

[0006] Through the above characteristics, the two round strings are wound on the upper and lower rims of the lens frames, with a length appropriately exposed from one end on the outside of the lens frames, to facilitate control in adjusting the span.

[0007] Through the above main characteristic, the first joining unit is located on the inside edge of the lens frame, having two round holes with openings. The second joining unit is located on the outside edge of the lens frame, having two clasping channels and a headband through the holes. These openings and channels serving to properly position the two ends of the round holes that comprise the nose bridge. Said headband through holes serves to accommodate the penetration of the headband.

[0008] Another characteristic of this invention lies in that, on the headband through hole is a fitting plate. On the said fitting plate is an embedding seat to accommodate the insertion of the headband and embed it on said headband through a hole to effectively clasp and position the headband.

[0009] Another characteristic of this invention is that between the fitting plate and the second joining unit are a first fitting unit and a second fitting unit that can be interlinked.

Brief Description of Drawings

[0010] Fig. 1 is a perspective view of a conventional swimming goggle design.

[0011] Fig. 2 is an exploded view of the present invention.

[0012] Fig. 3 is a perspective view of the present invention.

[0013] Figs. 4A, B and C illustrate how to adjust the span of the nose bridge in the present invention of swimming goggles.

[0014] Fig. 5 is a front view of a second embodiment of the invention of swimming goggles.

Brief Description of Numerals

[0015]

1 swimming goggles	10,10' lens frame
20, 20', 20" round string	3, 3' protective pad
4 headband device	30,30' face contact
101,101', 101" first joining unit	50,50' lens
102,102', 102" second joining unit	
1011, 1011', 1011" round hole	
1021, 1021', 1021" clasping channel	
1022, 1022' headband device through hole	103, 103' fixing groove
6 fitting plate	60 embedding groove
61 guide post	62 embedding seat

Detailed Description of Preferred Embodiment

[0016] Referring to Fig. 2, this swimming goggle invention is comprised of the following: two lens frames 10 and 10', two round strings 20 and 20', two protective pads 3 and 3', and a headband device 4. The two lens frames 10 and 10' positioned to the right and left sides accommodate two lens 50 and 50'. The two lens 50 and 50' are inserted and fixed into the lens frames. On the inside ends of the two lens frames 10 and 10' are first joining units 101 and 101', on the outside ends are second joining units 102 and 102'. The first joining units 101, 101' have two round holes 1011, 1011' with openings, serving to hook the ends of two round strings 20 and 20'. The second joining units 102, 102' have two clasping channels 1021, 1021' and two headband device through holes 1022, 1022', which serves respectively to fix the other ends of the two round strings 20 and 20' and the headband device 4. The headband device through holes 1022, 1022' are designed to be fastened to the fitting plate 6 to fasten the headband device 4. Between the fitting plate 6 and the second joining units 102, 102' are a first fitting unit and a second fitting unit that can be fitted together. The first fitting unit has an embedding grodve 60 located on the second joining unit, the second fitting unit has a guide post 61 on the fitting plate 6. Between the two guide posts 61 is the passage of the headband device 4.

[0017] In addition to the function of joining and positioning the headband device 4, the fitting plate 6 also has the function of obstructing the second joining units 102, 102' to provide better integral appearance to the swimming goggles. On the rims of the two lens frames 10 and 10' are two streamlined fixing grooves 103 and 103', where the two round strings 20 and 20' can be wound in position.

[0018] Made of flexible materials, the two round strings 20 and 20' respec,tively are inserted through the round holes 1011, 1011' and clasping channels 1021, 1021', and wound around the fixing grooves 103 an d 103' on the rims of the two frames 10 and 10'. The protective pads 3, 3' are monoblock formed onto the far side ofthe two lens frames 10 and 10' away from the lens 50 and 50', having a face contact 30 and 30' with appropriate flexibility to enable comfortable contact with the user's face, so that water will not seep in.

[0019] Please refer to Fig. 3. To assemble this swimming goggle invention, the following steps are followed. The part near the center of the two round strings 20 and 20' is snapped onto the round hole 1011, 1011' of the first joining unit 101, 101' on the lens frame 10, 10', then pulled along the rims of the two lens frames 10, 10' and fixed in the fixing grooves 103, 103'. Then the ends of the two round strings 20 and 20' are snapped and fixed onto the second joining unit 102, 102'. A proper span between the two lens frames is maintained, and a small section of the end of the two round strings 20 and 20' is exposed, to join the two lens frames 10, 10' as one unit. The fitting plate 6 pulls the headband device 4 to the embedding seat 62, then they are pulled to the headband device through holes 1021, 1021' of the second joining unit 102, 102', thus the invention of swimming goggles is assembled.

[0020] Please refer to Figs. 4A, 4B and 4C which illustrates the span adjustment for this swimming goggle invention. The round string 20 (20') at one side of the second joining unit 102 (102') is pulled out to be clasped by the clasping channel 1021 (1021') (as shown in Fig. A). Then the length of the upper and lower round strings 20, 20' is adjusted to suit individual needs (as shown in Fig. B), as required by the different arcs on the upper and lower parts of the user's nose ridge (as shown in Fig. 4C). The span of the nose bridge is determined by adjusting the lengths and locations of the upper and lower parts of the two round strings 20 and 20'. Therefore, in addition to step-less adjustment, it will suit the different nose ridge configurations of different users, so they can feel comfortable.

[0021] Please refer to Fig. 5, which is a second preferred design of the swimming goggle invention. The second

preferred design is different in that there is only one piece of round string 21)" . Also, there is only one round hole 1011" and one clasping channel 1021" in the first and second joining unit 101", 102" . The winding of the string 20" is from the lower rim of the lens frame 10" on one side and up to the upper rim of the lens frame 10" on the other side, while its two ends are respectively fixed and clasped onto the round hole 1011" and the clasping channel 1021". Other components and assembly methods are the same as the first design . This construction will achieve the same effect of wearing comfort by step-less adjustment.

[0022] The way this swimming goggle invention assembled is innovative. The integral unit or a single lens frame unit can be bought by the user who has the option of replacing a single one-sided lens of a different style, color, etc.

[0023] Summing up, the above description covers merely some examples of preferred embodiment only. All equivalent variations and modifications deriving from the above description shall be included in the spirit and intent of the subject claims.

Claims

1. A model of swimming goggles, comprising the following:

   Two lens frames, each lens frame accommodating a lens, on two opposite ends being a first joining unit and a second joining unit;
   Two round strings, respectively wound around the upper and lower rims of the lens frame, maintaining an appropriate span between two lens frames, and respectively fixed onto the first and second joining units of each lens frame;
   a headband device device, joined by serial connection to the second joining unit on the outside edge of two lens frames, including at least a headband, by such a characteristic construction, the user may adjust the span on the round strings ofthe two lens frames.

2. The swimming goggles as recited in Claim 1, wherein the round strings are made of materials with a proper flexibility, their diameter preferably between lmm-3mm, with a length appropriately exposed from one end on the outside of the lens frame.

3. The swimming goggles as recited in Claim 2, wherein the first joining unit is located at the inside edge of the lens frame, there being two round holes with openings, the opening being of a shape with a larger outside opening and a smaller inside opening, to facilitate the insertion and fastening of the round string inside the hole; and the second joining unit is located on the outside edge opposite the inside edge of the lens frame, there being two clasping channels and headband through holes, said openings and channels serving to properly fix in position the two ends of the round strings that configure the nose bridge.

4. The swimming goggles as recited in Claim 3, wherein the in the headband through hole on the second joining unit is a fitting plate, on said fitting plate being an embedding seat to accommodate the insertion of the headband, and embedded on said headband through hole to effectively fix the headband in position.

5. The swimming goggles as recited in Claim 4, wherein between said fitting plate and the second joining unit are a first fitting unit and a second fitting unit that can be fitted together.

6. The swimming goggles as recited in Claim 5, wherein the first fitting unit and the second fitting unit respectively have embedding grooves on their second joining units, and guide posts on the fitting plate.

7. The swimming goggles as recited in Claim 6, wherein the on the upper and lower rims of the two lens frames are fixing grooves to fix the round strings.

8. A new model of swimming goggles, comprising the following:

   two lens frames, each lens frame accommodating a lens, and, on two opposite ends being a first joining unit and a second joining unit;
   a round string, pulled in sequence from the first and second joining units of said two lens frames, maintaining an appropriate span between the two lens frames; and
   a headband device, pulled in serial connection on the second joining unit on the outside edge of the two lens frames, involving at least a headband;

by such characteristics, the user may adjust the span on the round string on the two lens frames, to adjust the span of the nose bridge.

9. The swimming goggles as recited in Claim 8, wherein the round string is made of a flexible material, with a preferred diameter of between 1mm- 3mm, and a length being properly exposed from one end on the outside of the lens frame.

10. The swimming goggles as recited in Claim 9, wherein the first joining unit located on the inside edge of the lens frame has a round hole with an opening, the opening being larger on the outside and smaller on the inside, so as to conveniently fix and fasten the round string therein; while the second joining unit is located on the outside edge of the lens frame, having a clasping channel and a headband through hole, said opening and clasping channel serving to properly clasp and fix into position the two ends of the round strings that comprise the nose bridge.

11. The swimming goggles as recited in Claim 10, wherein the headband through' hole on the second joining unit is attached with a fitting plate, and on said fitting plate is an embedding seat that leads the insertion of the headband, onto the headband through hole, and effectively clasp and fix into position the headband of the headband device.

12. The swimming goggles as recited in Claim 11, wherein between said fitting plate and the second joining unit are a first fitting unit and a second fitting unit that can be fitted together.

13. The swimming goggles as recited in Claim 12, wherein the first fitting unit and the second fitting unit respectively have embedding grooves on their second joining units, and guide posts on the fitting plate.

14. The swimming goggles as recited in Claim 13, wherein on the upper and lower rims of the two lens frames are fixing grooves serving to fix the round string.

15. A single lens frame construction, or a component comprising swimming goggles exclusively for swimming pools, said single lens frame comprising:

a lens frame, accommodating a lens, on two opposite ends being a first joining unit and a second joining unit; at least one round string, pulled into position in sequence on the first and the second joining units of said lens frame, with an appropriate length reserved, to be joined in series to another single lens frame, maintaining an appropriate span between two single lens frames, to assemble a pair of swimming goggles.

16. The single lens frame construction, as recited in Claim 15, wherein said round string is made of a flexible material, with a diameter preferably of lmm-3mm, with two strings respectively wound around the rims of the lens frame, and a length appropriately exposed from one end on the outside of the lens frame.

17. The single lens frame construction, as recited in Claim 16, wherein the said first joining unit is located on the inside edge of the lens frame, having at least a round hole with an opening, the opening having a larger outside and a smaller inside, to conveniently fasten the round string inside the hole; and the second joining unit is located on the outside edge opposite the inside edge of the lens frame , having at least one clasping channel and headband through hole, said opening and channel serving to properly fix into position the two ends of the round strings that comprise the nose bridge.

18. The single lens frame construction, as recited in Claim 17, wherein on the upper and lower rims of the lens frame are fixing grooves to fix the round string.

19. The single lens frame construction, as recited in Claim 18, wherein fitted to the headband through hole is a fitting plate, on said fitting plate being an embedding seat to accommodate the insertion of the headband of the headband device, and embedded onto said headband through hole, to effectively clasp the headband in position.

20. The single lens frame construction, as recited in Claim 19, wherein there are a first fitting unit and a second fitting unit that can be interlinked between the fitting plate and the second joining unit.

21. The single lens frame construction, as recited in Claim 20, wherein the interlinking first fitting unit and the second fitting unit respectively have embedding grooves on the second joining units, and guide post on the fitting plate.

FIG. 1

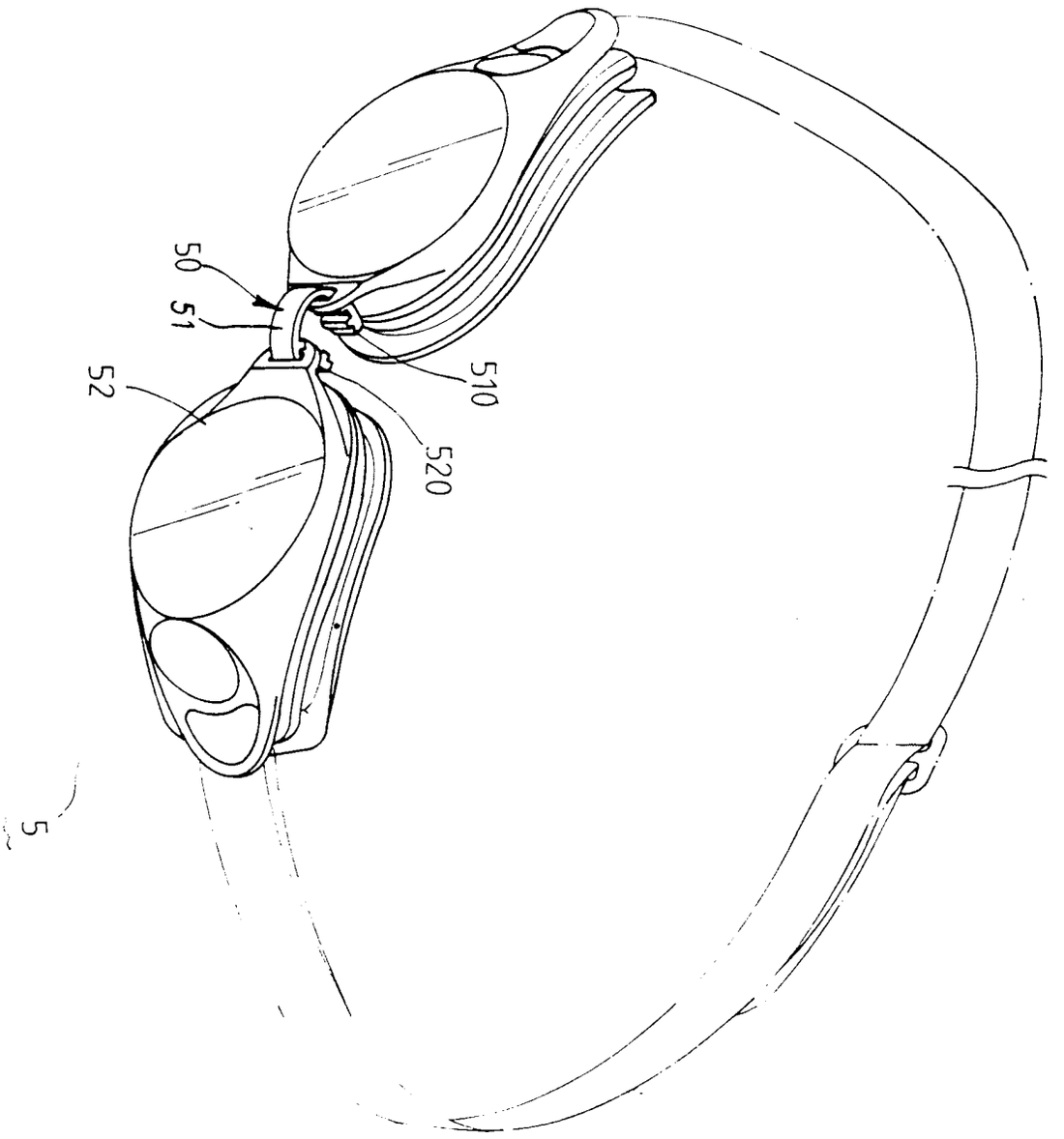
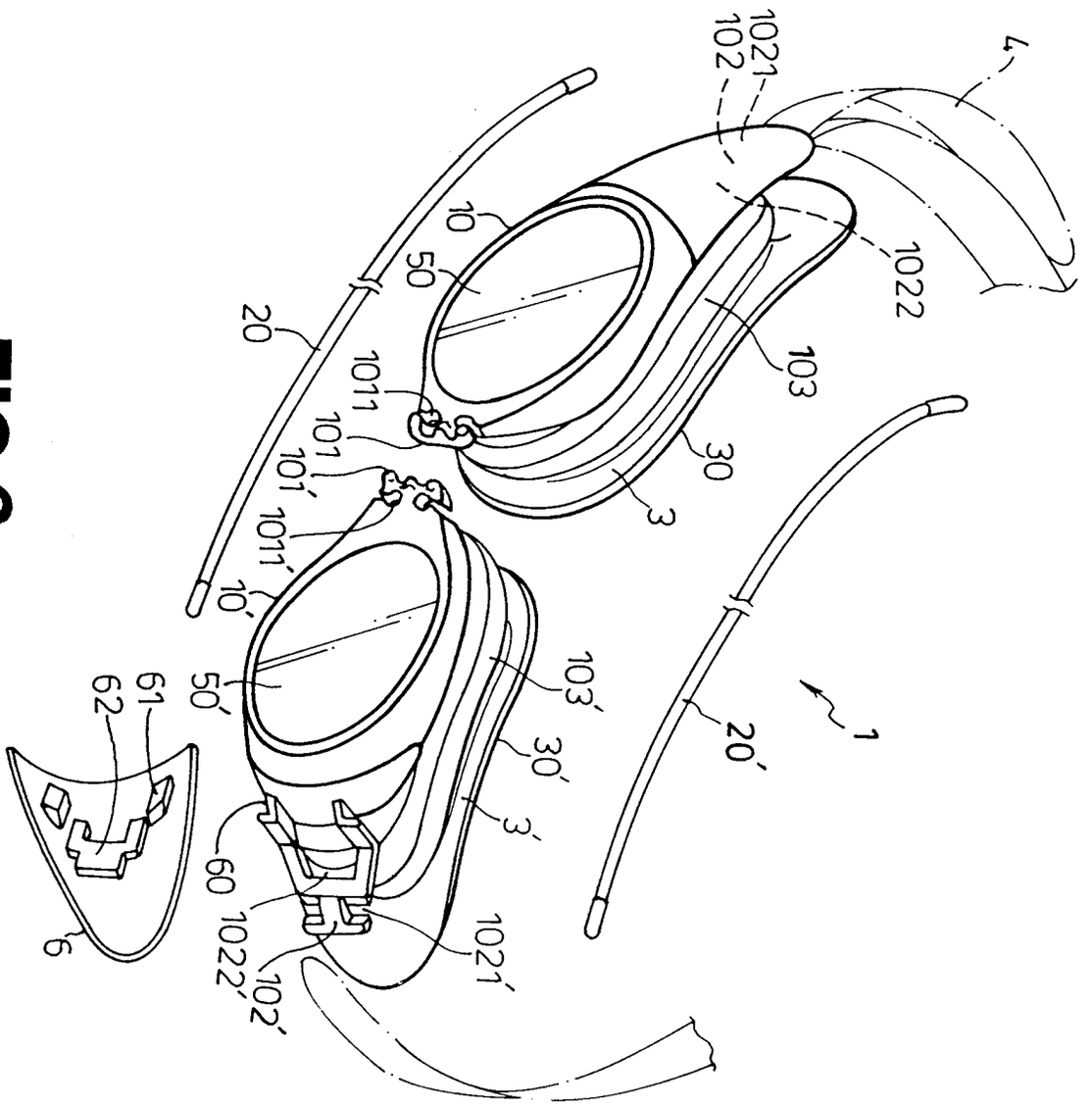


FIG.2


1021
102
4
10
50
1022
20
103
1011
101
30
101'
3
1011'
10'
103'
50'
61
62
30'
20'
1
3'
60
1022'
102'
1021'
6

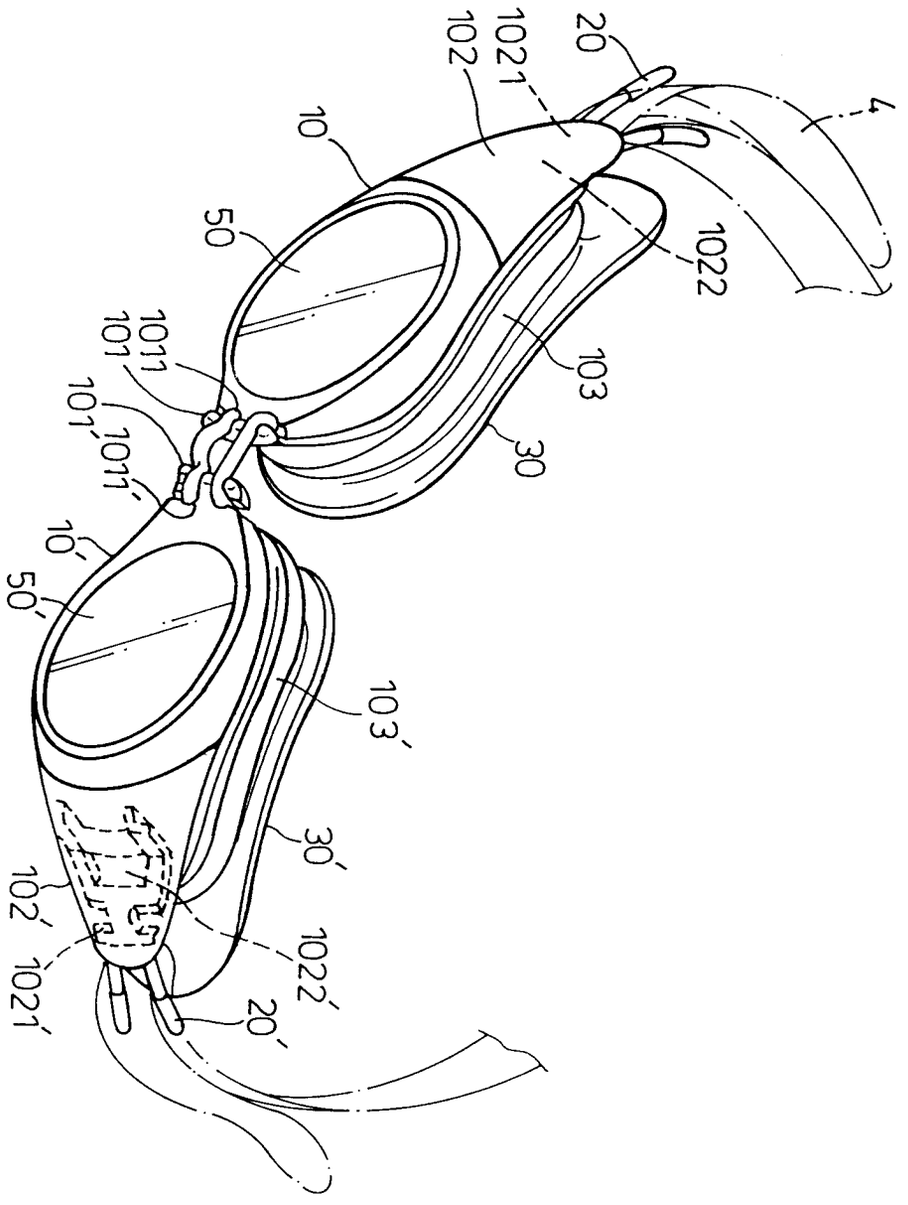

4
20
1021
102
10
50
1022
1011
101
103
101'
1011'
30
10'
50'
103'
30'
102'
1022'
1021'
20'

FIG. 3

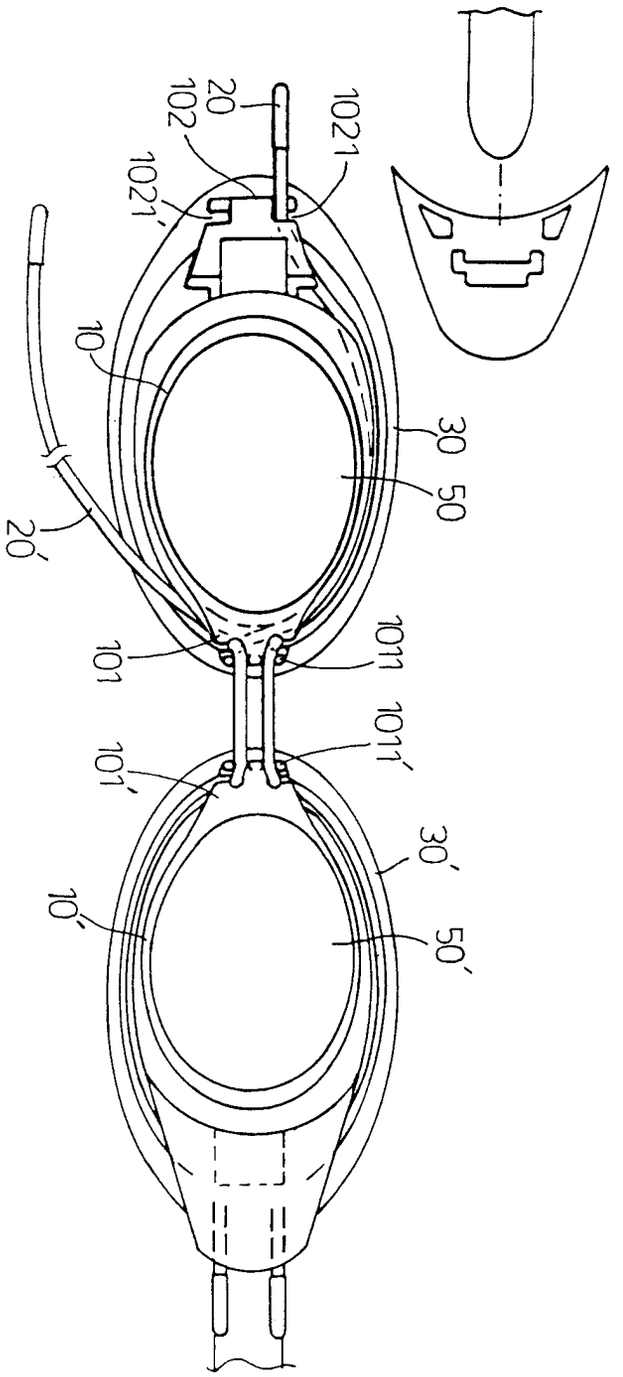


FIG.4A

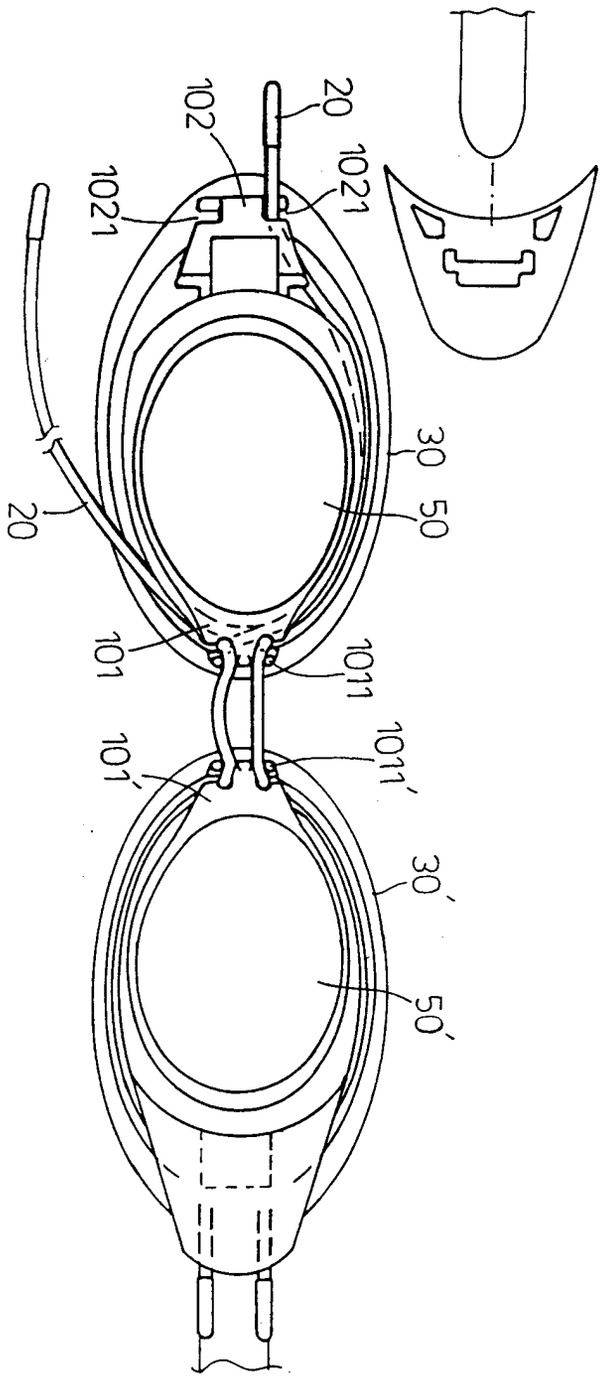


FIG. 4 B

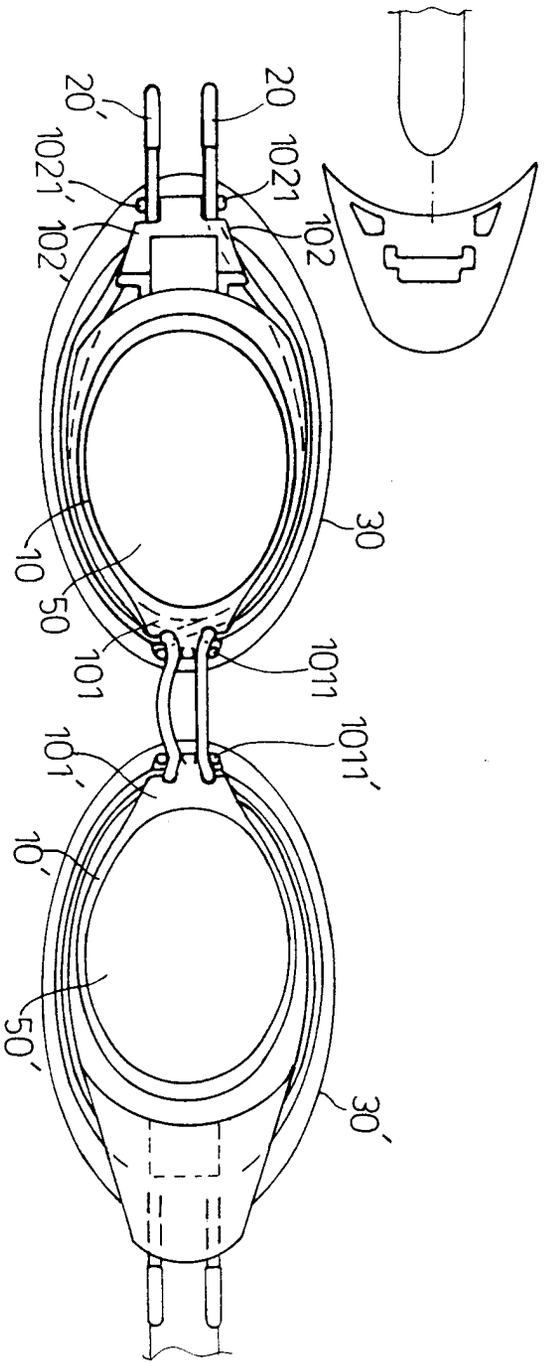


FIG.4C

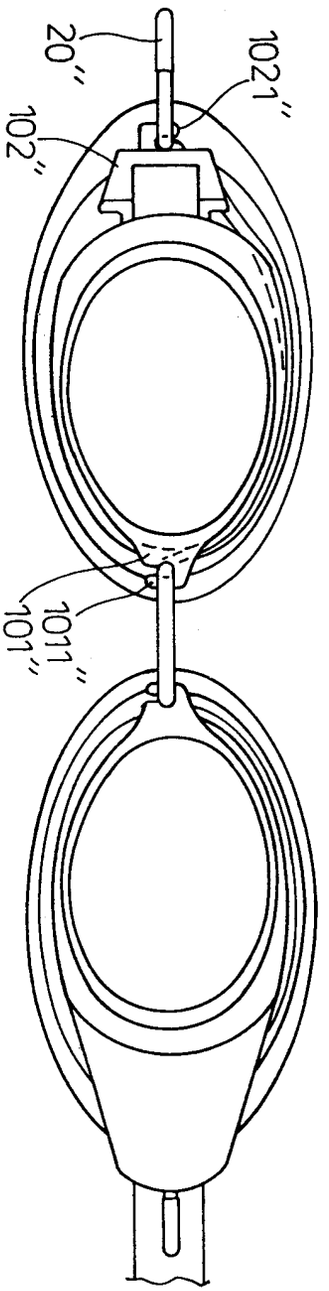


FIG. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 9697

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 857 221 A (GENEVE ET AL.) 12 January 1999 (1999-01-12) * abstract; figures 1-3 *	1,8,15	A63B33/00
X	US 5 502 844 A (ALVARADO) 2 April 1996 (1996-04-02) * abstract; figures *	1,8,15	
A	DE 685 459 C (HENSCHKE) * claim 1; figures *	1,8,15	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 April 2000	Jones, T

CATEGORY OF CITED DOCUMENTS

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28-04-2000

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